Lake Poinsett Watershed Implementation Project

Segment 2- Amendment

Sponsor

Hamlin County Conservation District

October, 2010

Submitted to:

South Dakota Department of Environment and Natural Resources

Pierre, South Dakota

Exhibit A

NPS PROJECT SUMMARY SHEET

AWARD FISCAL YEAR: 2011

PROJECT TITLE: **Lake Poinsett Watershed Implementation Project Segment 2 - Amendment**

NAME, ADDRESS, PHONE AND E-MAIL OF LEAD PROJECT SPONSOR:

Hamlin Conservation District

PO Box 165

301Marsh Street

Hayti, South Dakota 57241

Phone: 605-783-3353 Fax: 605-783-3412 e-mail: richard.smith@sd.nacdnet.net

PROJECT TYPE: Watershed

PROJECT LOCATION: Latitude 44°N Longitude 97°W

WATERSHED NAME: Lake Poinsett Watershed

HYDROLOGIC UNIT CODE (HUC): N/A

HIGH PRIORITY WATERSHED: Yes **POLLUTANT TYPE:** Nutrients, Phosphorus, Sediment-Siltation, Fecal coliform and Turbidity

UWA CATEGORY:

TMDL DEVELOPMENT: No **TMDL IMPLEMENTATION:** Yes

TMDL PRIORITY (High, Medium, Low): High

WATERBODY TYPES: Lakes, River, Streams, and Wetlands

ECOREGION: Northern Glaciated Plains

PROJECT CATEGORY: Agricultural/Animal Feeding Operations

PROJECT FUNCTIONAL CATEGORY: BMP Implementation/Design, Education/Information Programs

GROUNDWATER PROTECTION: No

Total 319 Funds: $486,462 **Local and State Match:** $611,538

Other Federal: $ 608,700 **Total Project Cost:** $ 1,706,700

319 Funded Full Time Personnel: 1.0

Goals:

The goal of the Project is to restore and implement practices that will maintain a long term full realization of all designated uses of the surface waters identified. This project is in the second segment of the local effort to complete BMP installation to reduce phosphorous loading by 40 percent to Lake Poinsett, originating from watershed feeding areas, stream and lake side use areas, and cropland. This amended expansion will include additional portions of the Big Sioux River, which during flood conditions can cause significant nutrient and sediment loading problems to Lake Poinsett The expansion will address the impaired status of the Big Sioux River, as well as its potential effect on Lake Poinsett. The primary focus for the Big Sioux River portion will be fecal coliform reduction to meet TMDL standards.

Project Description:

The Lake Poinsett Watershed Project has been a TMDL implementation strategy to restore the designated beneficial uses of Lake Poinsett. The Project expanded with the same criteria to address listed Lake Albert, Lake Norden, Lake St. John and Lake Marsh which directly feed into Lake Poinsett. Through the voluntary installation of BMPs, educational, financial and technical assistance; monitored conditions have improved, which has lead to delisting several of the conditions previously evaluated. Building on these practices and successes, this second expansion will encompass the adjacent impaired reaches of the Big Sioux River and tributaries in Hamlin County , Deuel County and portions in Codington County below the already existing EPA 319 Project for the Upper Big Sioux River Watershed. This segment expansion will provide technical and financial assistance to landowners to install BMPs and supplement an informational campaign to increase awareness of impairments and available project activities in the expanded area. Additionally, continued informational, technical and financial assistance for BMP establishment within Lake Poinsett watershed will maintain and improve some remaining high priority concerns.

Lake Poinsett Segment 2 Amendment Cover Summary: (Submitted by Richard Smith, Lake Poinsett Segment 2-Project Coordinator)

The main change to this Project will be the inclusion of portions of the North Central Big Sioux River watershed area into the Lake Poinsett Project. Due to the changes expected in sponsorship of the Central Big Sioux River Project which included this area, the Hamlin County Conservation District is applying for sponsorship, to include the portions upstream from the Brookings/Hamlin county line to the discharge area of Willow Creek into the Big Sioux River near Watertown SD in Codington County.

TMDL segments of the Big Sioux River and tributaries will be targeted for fecal coliform bacteria by the Proposed Amendment. Fecal bacteria reside in the intestines of warm blooded animals and when eliminated from that host, have relatively short life spans in the outside environment. However during that time before they become inactive, pose serious health risks to most all warm blooded animals and humans. Unlike nutrient loading being addressed in TMDLs on lakes, the focus will be to address livestock within or adjacent to the streams on a daily basis rather than accumulations of manure on land with potential transportation to river and tributary segments. Animal feeding operations where runoff

has access to daily manure production from livestock will be considered in relation to distance, barriers or filters to TMDL rated segments.

The best management practices (BMP) to be implemented in the expansion area will be those effective in creating barriers to livestock or filters adjacent to waterways that lack those barriers. While BMPs are beneficial to employ across the entire landscape, for the purpose of meeting the TMDL target, cost share activities from EPA 319 will be limited to only adjacent or termed 'riparian areas'.

When BMPs are available with cost share and still not being implemented by landowners the question is 'what needs to change?' First the producers and landowners need to be made aware of water quality concerns and potential practices (Information meetings). Second they need to be advised how to implement (Direct technical assistance). Third they need to be apprised of their opportunities for cost share if wanted (Partnership with agency personnel). Fourth, the fiscal expenditures need to be limited to and highlight the concern, but offer a viable alternative to present operation (Incentives). Fifth producers and landowners need to accept ownership and responsibility of the practice implemented through vested interest (costs shared not a gift). These aspects are all addressed in this proposal.

Proposed practices or incentives unique to this Project:

1. The CP-30 and CP-29 practices within the CCRP will be used as a base program in riparian grazing areas. The requirements of 35 ft minimum and up to an average 120 ft buffer will suffice in eliminating fecal bacteria from TMDL stream segments in most instances. Recognizing this as a top water quality practice to eliminate fecal bacteria, the Project proposes an additional $200/acre signup payment for 15 year contracts. This proposal will limit acreage removal of pastureland from working landscapes while focusing the concern on how and where water impairment occurs.
2. Grazing management programs for producers and landowners specifically oriented to stream corridor grazing will be presented both locally and in conjunction with other organizations as Regional Conferences to address the issue of streamside grazer's impact on water and solutions. Additionally, grazing management plans which recognize the ability to limit access within a grazing pattern for streamside areas will be individually developed for producers.
3. Located within a high rainfall area of South Dakota, the practice of no-till farming is practiced by very few and they usually do not meet the true no-till concept. While many corn fields are no-till planted to soybeans the following year, those same fields often are deep chiseled after the soybeans are harvested leaving them barren of cover throughout the winter and following Spring, when most runoff is encountered, negating the benefits achieved under no-till practices. On lands with significant sloping fields this results in increased runoff and soil erosion. New equipment is becoming available that creates vertical tillage in that the residue and soil may be vertically sliced, but the entire residue remains on the surface. The proposal is to offer an incentive of $5/acre if a producer Spring plants using no-till practice into the previous crops residue and does not apply residue burying tillage that same fall. Vertical tillage would be the only tillage allowed and strip tillage where furrows are made to place fertilizer would not be allowed. Only fields with portions over 5% slope and adjacent to some form of waterway would

be considered for the cost share options. This $5 incentive per acre if accepted would result in a 29 month consecutive period of either residual cover or active vegetative growth, from the preceding year's planting time to the following year's harvest time and produce two years of winter cover. The Project considers this Product within the PIP as a valuable demonstration practice and information transfer to justify a field day tour with equipment dealers of no-till and vertical till equipment and soil specialists demonstrating rainfall simulators and soil quality judging.

2.0 Statement of Need:

2.1 Water Quality Priority:

The Lake Poinsett Watershed Implementation Project is a Total Maximum Daily Load (TMDL) implementation strategy designed to improve and/or maintain the water quality objectives of Lake Poinsett, Lake St. John, Lake Norden, and Lake Albert. Lake Poinsett is a 7,868 acre glacial lake with a 287,628 acre watershed located in Hamlin, Kingsbury, and Brookings Counties. Lakes Norden, Albert, and St. John are located in the watershed. Additional significant natural lakes in the watershed also upstream of Lake Poinsett include Marsh Lake, Dry Lake, and Thisted Lake. Lake Poinsett is the last lake in this branched chain of lakes and outlets to the Big Sioux River approximately 3 miles to the east. Dry Lake located on the north branch of the Lake Poinsett watershed is also connected to the Big Sioux River by the man-made Boswell Diversion. The Diversion was originally built to route river water to Dry Lake and then Lake Poinsett, before the issue of nutrient and sediment loading impairments were understood. Diversion channel control gates are now used to impede water entrance into Dry Lake of Big Sioux River water, but are often overtopped when flood conditions occur on the adjacent reach of Big Sioux River.

A Diagnostic Feasibility Study was completed for Lake Poinsett during 1996. From 1998 through 2010, Hamlin Conservation District has sponsored two project implementation plans targeted towards improving or maintaining Lake Poinsett water quality. The second segment of the implementation strategy continued this effort and began to also use the data available from the Diagnostic Feasibility Studies for Lakes St. John, Norden, and Albert to target BMPs that would affect these upper chain lakes.

The *2006 South Dakota Integrated Report For Surface Water Quality* did not list Lake Poinsett on the 303(d) list but listed the lake as EPA category 4 "water impaired but has an approved TMDL". Lakes Norden, Albert, and St. John were listed on the 303(d) list as priority 1 waterbodies, and as EPA category 5 lakes "impaired requires a TMDL". BMP work began on the upper lakes in 2007.

The *2010 South Dakota Integrated Report For Surface Water Quality* lists Lake Poinsett as EPA category 1* "*All uses met-with approved TMDL for nutrients*". Lakes Albert, St. John and Norden were *delisted* from the 303(d) list and given EPA category 1 status of "*All uses met*". Lake Marsh is listed as EPA category 3 "*Insufficient data*". With the expansion of this second segment to add portions of the North Central Big Sioux River the following pertinent information is provided by the *2010 South Dakota Integrated Report For Surface Water Quality.* Willow Creek, Stray Horse Creek and Hidewood Creek are

EPA category 4A*, "*Impaired with Approved TMDL for Fecal Coliform*". The Big Sioux River from Willow Creek to Stray Horse Creek is EPA category 5* "*Impaired with TMDL for Fecal Coliform and Impaired and in need of TMDL for E Coli*".

Nonpoint source pollution is listed in the *2010 South Dakota Integrated Report on Surface Water Quality* as the source of impairment causing beneficial use non-support. Fecal Coliform sources leading to the TMDL requirement were identified as Livestock (grazing and feeding operations) and Animal Feeding Operations. The following designated beneficial uses are listed as non-supportive in the 2010 report:

Willow Creek……...Limited Contact Recreation

Big Sioux River from Willow Creek to Stray Horse Creek……..Limited Contact Recreation

Stray Horse Creek……..Limited Contact Recreation

Hidewood Creek……..Limited Contact Recreation

The TMDL established for Lake Poinsett (12/26/1996) addresses each of two pollutant types (nutrients and sediment) with the TMDL end point stated as follows: "158 tons total lake algal biomass 40% reduction in total phosphorus'. The TMDL established matches the Diagnostic Feasibility Study conclusion that an estimated 40% reduction in total inflow phosphorus concentrations would reduce algal biomass from 774 tons to an estimated 158 tons.

The goal of the Lake Poinsett Watershed Implementation Project has been to restore and place in effect best management practices that maintain Lake Poinsett water quality to ensure the long term full realization of all designated uses of the lake. Project objectives are: Reduce phosphorus loading by 30-35 percent, reduce sediment loading by 40 percent.

The TMDLs are established for each: Willow Creek, Stray Horse Creek, Hidewood Creek and the Big Sioux River from Willow Creek to Hidewood Creek. The TMDL pollutant to address is Fecal Coliform Bacteria with a goal of fully supporting the Limited Contact Recreation Beneficial Use during the months of May to September. Target is $\leq$ 2000 cfu/ 100 ml of fecal coliform bacteria (any one sample) during the months of May to September.

Table 1: Goals and Completed Tasks of Lake Poinsett Watershed Project

Products	**Segment 1 Completed**	**Segment 2 Goal**	**Segment 2 Completed**
Nutrient Control:			
Integrated Crop Management	12,182 acres	NA	NA
Grazing Management	3,500 acres	2,500 acres	500 acres
Riparian livestock exclusion		20,000 ft	25,000 ft
Animal Waste Control Systems	21 locations	9 locations	7 locations

Sediment Control:			
Shoreline Stabilization	12,000 ft	2,000 ft	2500 ft
Crop Residue Mangmt.	3,000 ac/yr	NA	NA
Small Dams/ Ponds	11 sites	NA	NA
Wetland Restoration	471 acres	NA	NA
Nutrient & Sediment Control:			
Alternative Water Source	20 sites		
Filter Strip/ Grass Seeding	5,331 acres	600 acres	604 acres
Riparian Protected Sites	7 sites	8 sites	22 sites
Information and Education:			
Public Meetings	10	2	4
Public Tours	10	4	5
Printed Brochures	3,000	NA	NA
Printed Newsletters	15	4	3
e-news updates			Bi-monthly

Table 2: Sources of funding for prior and current projects.

Sources	**Segment 1** **Completed**	**Segment 2** **Used as of 10/1/10**	**Segment 2** **Allocation**
EPA 319	751,949	343,820	435,000
Local / Landowner	483,640	486,094	
SD Consolidated Water	120,003	-----	
Lake Poinsett Water Project District	109,623	30,546	
Conservation Commission Grant	73,752	3,997	
Other Federal Grants	35,815	125,031	
Hamlin County Conservation District	17,517	Included in Local	
Public meeting Supporters/ advertisers	5,022		
SD Game Fish & Parks	3,500		

Totals	1,625,154	989,489	

The goal of the expansion of Segment 2 Lake Poinsett Watershed Implementation Project is to build on the success of original project area and apply those accepted best management practices which specifically address fecal coliform bacteria into the expanded boundaries area.

2.2 Waterbody Descriptions

Lake Poinsett, Lake Albert, Lake Norden, and Lake St. John, all have important economic and social values to the region related to recreation, wildlife habitat, and residential living. The watershed is located in the Prairie Pothole region with numerous natural lakes and semi-permanent wetlands. Other significant natural lakes in the watershed include: Marsh Lake, Lake Mary, Dry Lake, Thisted Lake, and Badger Lake.

Table 3: Drainage and Basin Attributes for Lake Poinsett, Lake Albert, Lake Norden, and Lake St. John.

Attribute	**Lake Poinsett**	**Lake Albert**	**Lake Norden**	**Lake St. John**
Surface Acres	7,868	3,500	746	1,200
Average Depth (Ft.)	9.5			
Drainage (acres)	287,628 (44,628 acres from its watershed only)	244,000 (43,000 acres w/o Marsh, Norden, St. John, included)	188,724 (89,993 acres w/o Marsh Lake Included).	201,500 (12,500 acres w/o Norden and Marsh included)
County Located	Hamlin and Brookings	Hamlin and Kingsbury	Hamlin	Hamlin
TMDL Status	Established	Needed	Needed	Needed
Outlets to :	Big Sioux River	Lake Poinsett	Lake St. John	Lake Albert

Lake Poinsett:

Lake Poinsett is a 7,868 acre lake originating from glacial activity. It is one of the largest natural lakes in South Dakota and its natural outlet is three miles long to its entrance into the Big Sioux River. The lake receives most water inflows directly from the Dry Lake subwatershed to the north or from Lake Albert. The Lake Poinsett watershed is 287,626 acres, however an additional 470,000 acres of drainage was added through construction of the Boswell Diversion in 1929. This diversion was built to use Lake

Poinsett and Dry Lake for floodwater storage when the Big Sioux River reached flood stage. Both the Lake Poinsett outlet and the Boswell Diversion have control gates and are now kept closed to prevent Big Sioux River water from backing up into the lake as this water is very low quality.

Lake Poinsett is highly developed for recreation and commercial purposes with approximately 625 residences and 10 businesses located around the lake. The SD Game, Fish, and Parks maintain four developed public access areas on the Lake. Lake Poinsett is located on the east side of Highway 81, 20 miles south of Watertown (population = 17,600) and 25 miles northwest of Brookings (population = 25,000). The closest communities to the lake are the rural communities of Estelline (pop. = 650 and 7 miles east) and Lake Norden (pop = 425 and 7 miles west).

Lake Albert:

Lake Albert is natural lake with a surface area of 3,500 acres. It is located in Hamlin and Kingsbury Counties with it outlet to Lake Poinsett approximately 1 mile in length. Lake Albert receives overflow waters from Lake Marsh, Lake Norden. Lake Mary, and Lake St. John which outlets (over less than 1 mile) into Lake Albert from the northwest and from the Lake Badger, Thisted Lake watershed to the south. . Thus Lake Albert receives runoff waters from 244,000 acres of the total 287,828 acre Lake Poinsett Watershed. Lake Albert located to the southeast of Lake Poinsett is closest to the rural communities of Badger (5 miles south) and Lake Norden (pop. = 425 and 7 miles northwest). Public access facilities at Lake Albert include a dock, boat ramp, and restrooms.

Lake St. John:

Lake St. John is a 1,200 acre natural lake with a drainage area of 201,500 acres. Lake St. John is located below Lake Norden and Lake Marsh in the watershed and receives outflow water from these lakes. Lake St. John without Lakes Norden and Marsh has a drainage area of 12,500 acres. Public facilities at Lake St. John include a boat ramp. The lake is located less than a mile from Lake Albert

Lake Norden:

Lake Norden is a 746 acre natural lake located near the City of Lake Norden. Lake Norden's drainage is 188,724 acres and it outlets into Lake St. John (2.5 miles to the southeast). Public facilities include a boat ramp and restrooms. Marsh Lake, 1,595 surface acres is located northwest of and outlets into Lake Norden. The drainage area for Marsh Lake is 98,731 acres of the 188,724 acre watershed.

Table 4: Attributes of North Central Big Sioux and Tributaries.

Attribute	**Willow Creek**	**Stray Horse Creek**	**Hidewood Creek**	**Big Sioux River Willow Creek to Stray Horse Creek**
Drainage (acres)	79,931	57,548	85,815	144,371
Approximate	25.2	23.2	25.7	22.4 segment

length (miles)				
County Located	Codington, Deuel and Grant	Codington, Deuel and Hamlin	Deuel and Hamlin	Codington and Hamlin
TMDL Status	Established	Established	Established	Established
Outlets to	Big Sioux River	Big Sioux River	Big Sioux River	Continuation

Willow Creek:

The watersheds of School Lake, Bullhead Lake, Round Lake, and Wigdale Lake, in northwestern Deuel County and part of Grant County, are also located in this region. A separate watershed assessment was completed on these four lakes in 2005. Willow Creek drains this chain of lakes and enters the Big Sioux River south of the City of Watertown. Land use in this area is predominantly agricultural. The main stem of Willow Creek is approximately 25.2 miles in length with a watershed of approximately 79,931 acres. This tributary is located within the Big Sioux River Basin (HUC10170202) in the eastern part of Codington County and northwestern Deuel County, South Dakota. The watershed of this stream lies within Grant, Deuel, and Codington Counties.

Stray Horse Creek:

The main stem of Stray Horse Creek, beginning south of Kranzburg, is approximately 23.2 miles long with a watershed of approximately 57,548 acres. This tributary is located within the Big Sioux River Basin (HUC 10170202) in the north-central part of Hamlin County and southeastern Codington County, South Dakota. The watershed of this stream lies within Hamlin, Deuel, and Codington Counties.

Hidewood Creek:

Hidewood Creek is a 25.7 mile tributary to the Big Sioux River with a watershed of approximately 85,815 acres, located within the Big Sioux River Basin (HUC 10170202) in the south-eastern part of Hamlin County and southwestern Deuel County, South Dakota. The watershed of this stream lies within Hamlin and Deuel Counties.

Big Sioux River- Willow Creek to Stray Horse Creek:

The section of the Big Sioux River from Willow Creek to Stray Horse Creek is a 22.4 mile segment with a watershed of approximately 144,371 acres and is located within the Big Sioux River Basin (HUC 10170202) in the south-central part of Codington County and the north central part of Hamlin County, South Dakota. The watershed of this segment lies within Hamlin, Codington, Grant, and Deuel Counties.

2.3 Maps

Map (Figure 1) shows the combined Lake Poinsett, Willow Creek, Stray Horse Creek, Hidewood Creek and Big Sioux River Watersheds Project Area.

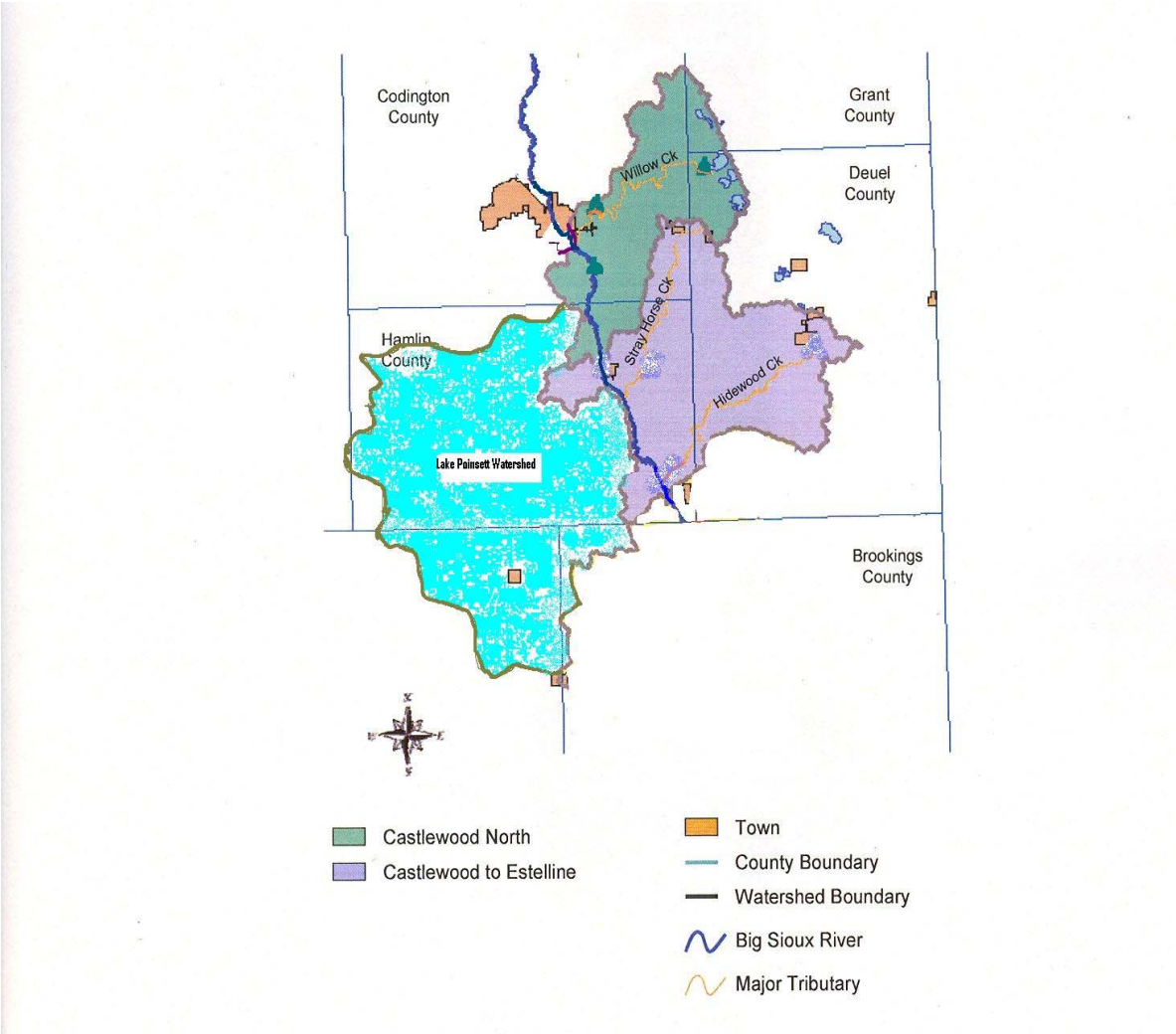

Figure 1: Combined Lake Poinsett/North Central Big Sioux Watershed Project Area

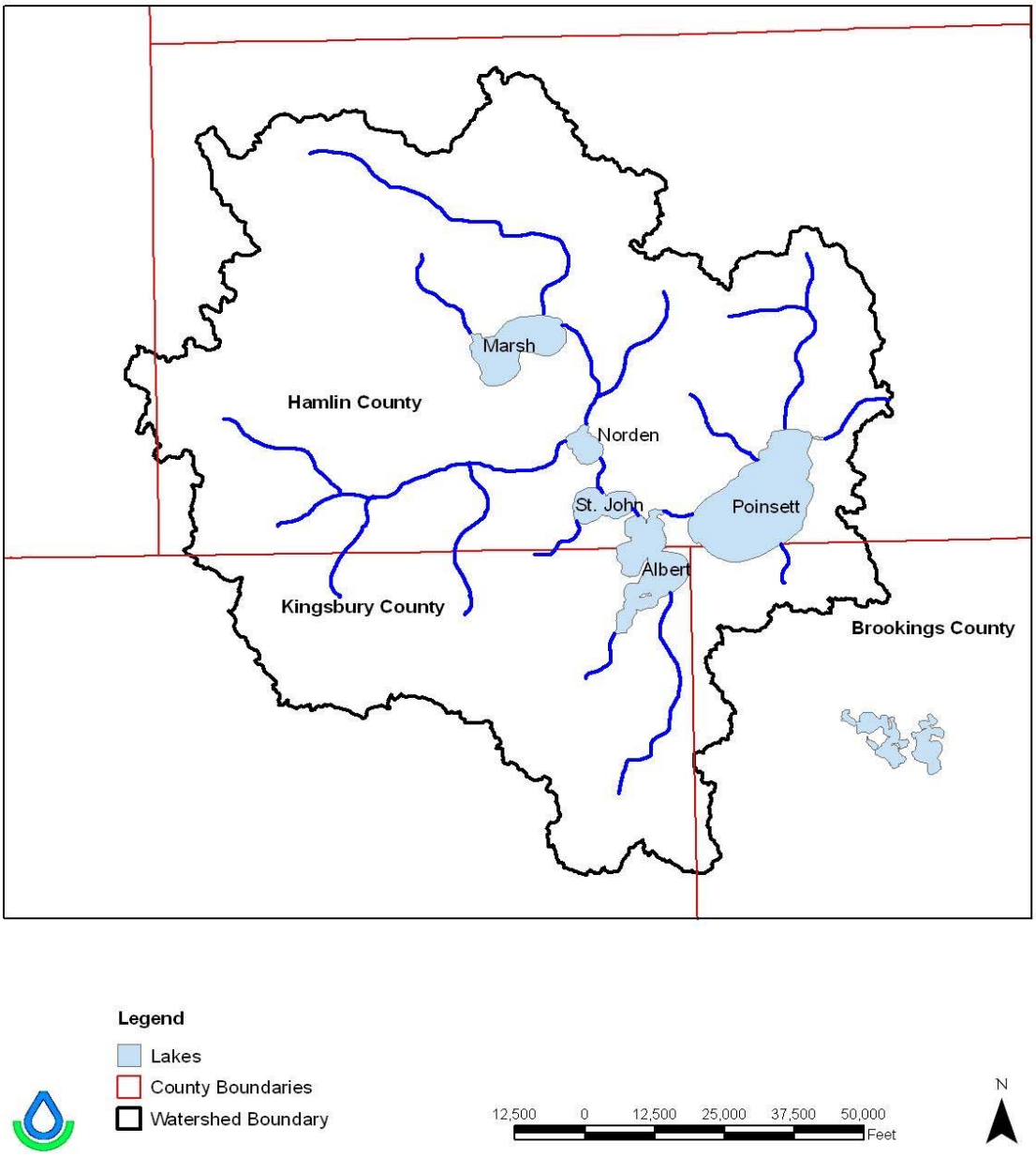

Figure 2: Lake Poinsett Watershed Boundaries

Map (Figure 3) Castlewood to Estelline portion of Big Sioux River, Stray Horse Creek and Hidewood Creek Watershed areas within Project area (193,500 acres).

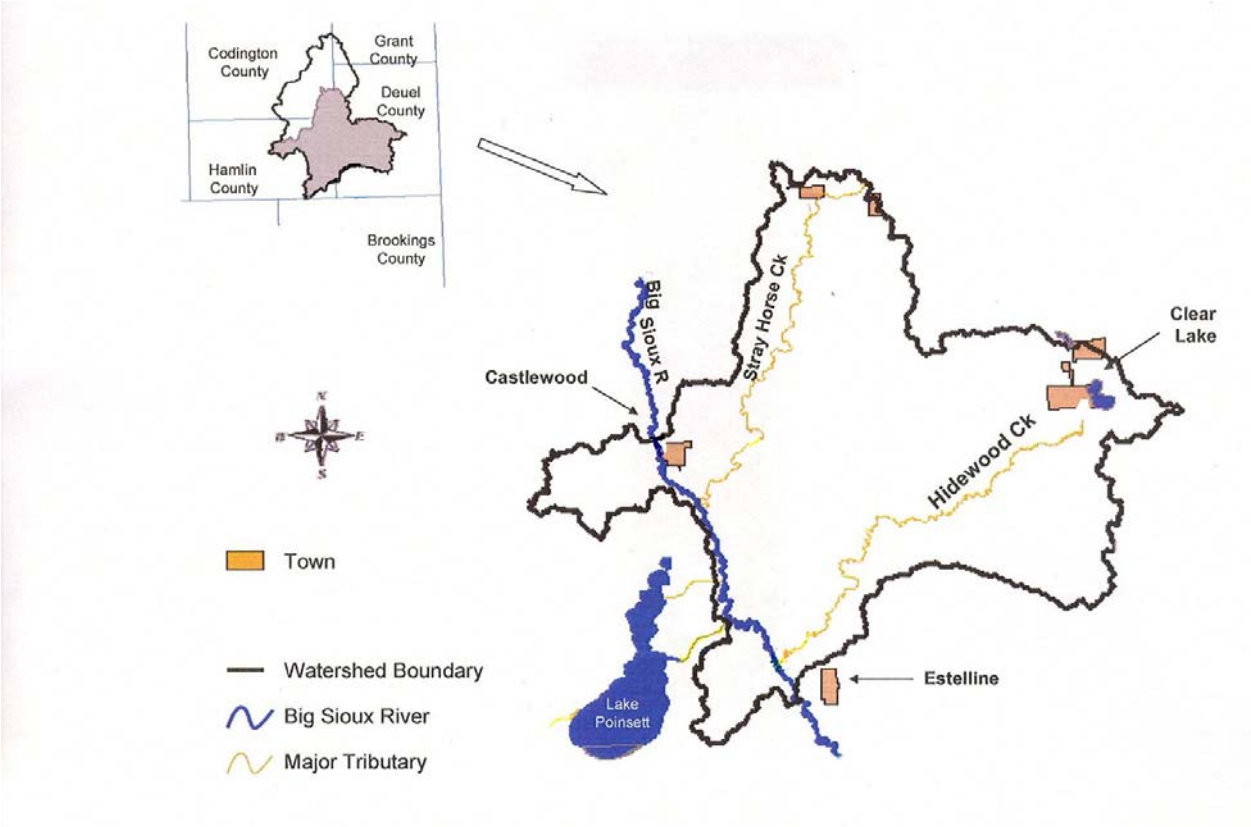

Figure 3: Castlewood South Watershed Project Area Boundaries

Map (Figure 4) shows the portion of Big Sioux River and Willow Creek watersheds above Castlewood in Project Area (126,321 acres).

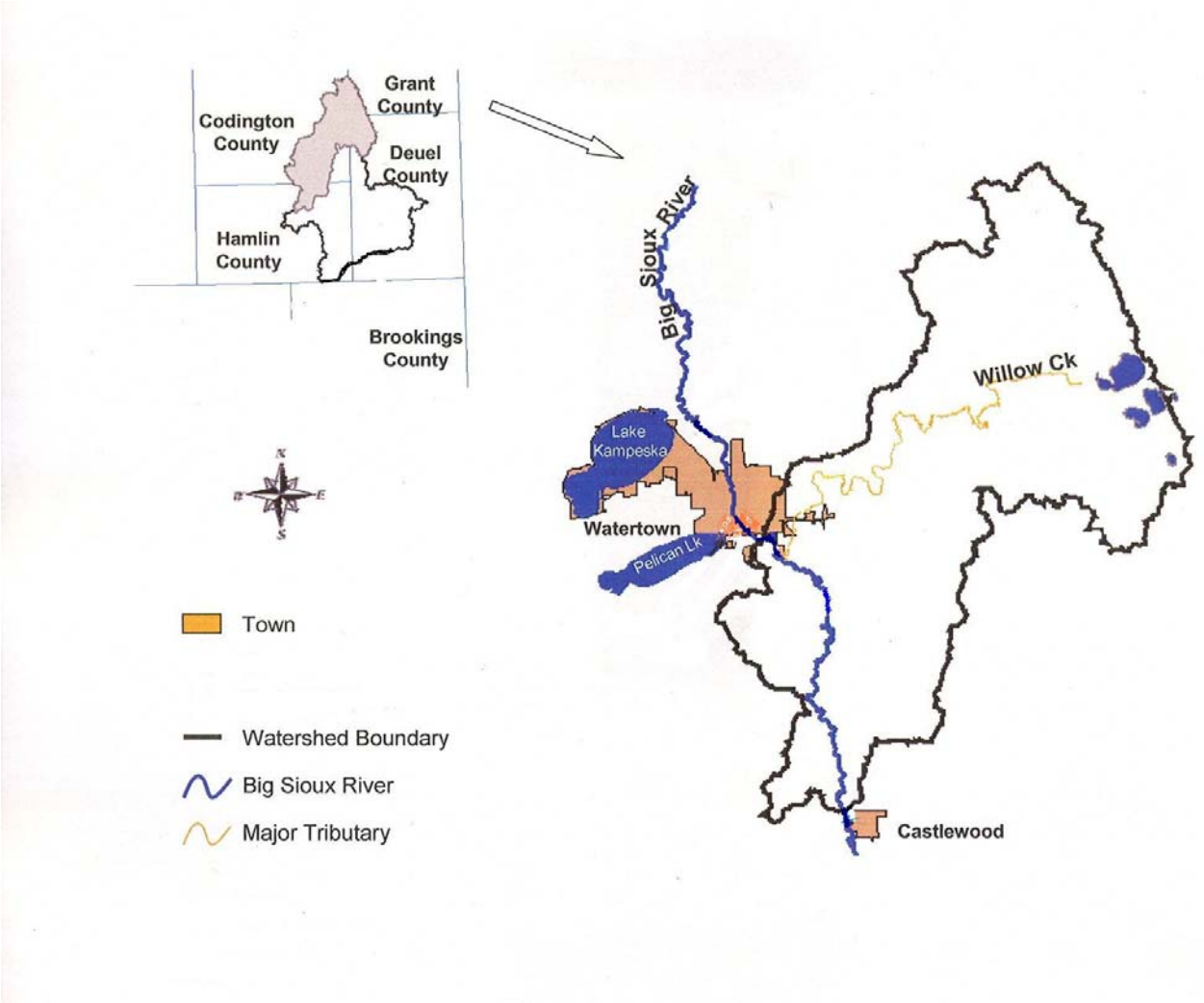

Figure 4: Castlewood North Watershed Project Area Boundaries

2.4 Watershed Information;

The Lake Poinsett watershed is in the Northern Glaciated Plains, Level III, Ecoregion and the Prairie Coteau sub-ecoregion. The landscape is flat to gently rolling composed of glacial drift with a poorly defined drainage pattern. The subhumid conditions foster a transition between the tall and short grass prairie. High concentrations of temporary and seasonal wetlands create favorable conditions for duck nesting and migration. The North Central Big Sioux River watershed contrasts the Lake Poinsett watershed by having well defined drainage patterns with fewer wetland designations.

Average precipitation in the watersheds is 22-24 inches of rainfall per year, with 75 percent received during the April through September period. Snowfall averages 25-30 inches per year. Runoff occurs primarily from occasional heavy thunderstorms and from spring snow melt.

The watershed is composed of cretaceous sedimentary rock overlain by approximately 500 feet of glacial drift. Many of the soils were formed in loess that overlies the drift while others were formed in alluvium. Land use in the watershed is predominantly agricultural and land ownership is 95 percent private.

Table 5: Land use for the Lake Poinsett and North Central Big Sioux River Watersheds

	Lake Poinsett		Big Sioux River Willow Creek to Stray Horse Creek		Willow Creek		Stray Horse Creek		Hidewood Creek	
Land use	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
Cropland	175500	61	100548	70	49319	62	45629	79	58318	68
Grassland	49428	17	38226	26	26511	33	10412	18	25752	30
Water			2887	2	2887	4				
Farmsteads	12700	5	2364	0	1168	1	1044	2	1711	2
Wildlife	50000	17	347	0	46	0	463	1	34	0

2.5 Water Quality Problem

Lake Poinsett Watershed:

Excessive algae blooms have been observed consistently over the years on Lake Poinsett, Lake Albert, Lake St. John, and Lake Norden hampering recreational uses during the high use periods of the year. These algae blooms are caused by excessive nutrients delivered from the watershed. The data collected from the 1996, Diagnostic Feasibility Study, indicates that phosphorus loading was determined to be the limiting nutrient.

Lake Poinsett outlets into the Big Sioux River and all other lakes in this project are in the Lake Poinsett watershed . The installation of BMPs in this project area will benefit the water quality of individual priority lakes (Albert, Norden, St. John) as well as always benefiting the water quality of Lake Poinsett.

The goal of the Lake Poinsett Watershed Project is to restore Lake Poinsett to ensure the long term full realization of all designated uses of the lake. Project objectives include; reducing phosphorus loading by 20 percent, reducing sediment loading by 20 percent, and completing an information campaign. The goal for this continuation project includes Lake Norden, Lake Albert, and Lake St. John.

This project's goal and objectives are based on the water quality conditions of Lake Poinsett, with targeting of BMP implementation to the entire watershed. As the assessment process is evaluated for

the other priority lakes in the watershed, BMP implementation in these watersheds will be based on their individual study recommendations for their water quality improvement.

The TMDL for Lake Poinsett was established in 1996 with an end point of " 158 tons of total lake algal biomass 40% reduction in total phosphorus". The TMDL established coincides with the Diagnostic Feasibility Study recommendation to reduce phosphorus loading from the watershed by 40 percent. In comparison to other watersheds in Eastern South Dakota, the sediment and nutrient loadings to Lake Poinsett appear to be low.

Phosphorus loads from the watershed to Lake Poinsett enter through the inlet from Lake Albert or the inlet from Dry Lake. The total phosphorus load to Lake Poinsett is from the following watersheds areas and/or sources:

- 73 percent from Lake Albert
- 24 percent from Dry Lake
- 3 percent from failing septic systems

Flood water diversions through the Boswell Diversion or back-up waters through the outlet from Lake Poinsett to the Big Sioux River have not been allowed to enter the lake in recent years due to management plans by SD Game Fish and Parks and Flood Control Permit FC-5 issued by the SD Water Rights Board for use of control gates on Lake Poinsett Outlet. However, during Big Sioux River flood events where the control gates are overtopped, the Boswell Diversion Channel becomes a conduit for river water to reach Dry lake and subsequently Lake Poinsett. Potential phosphorus loading into Lake Poinsett from the Big Sioux River has the potential to be three times the load estimated from Lake Albert.

The BMPs recommended for installation to reduce nutrient loading to Lake Poinsett

- Animal Waste Systems
- Integrated Crop Management
- Grazing Management
- Expansion of the existing centralized sanitary sewer system on Lake Poinsett.

The BMPs recommended to reduce sediment loading and phosphorus loading associated with soil erosion have included:

- Lake Shoreline Stabilization and Management
- Riparian Demonstration Sites
- Crop Residue Management
- Grassed waterways on Cropland.
- Filter strips and/or grassed buffers
- Small ponds or dams on tributaries
- Wetland restoration.

A public awareness program is also recommended to inform landowners on BMP installation and the project goal and progress.

North Central Big Sioux River System:

For the segment of Big Sioux River which passes through southern Codington and Hamlin Counties, as well as the tributaries of Willow Creek, Stray Horse Creek and Hidewood Creek, fecal coliform bacteria is the pollutant of concern. Fecal coliform bacteria impairments were encountered throughout the North-Central Big Sioux study area. The source of the bacteria is believed to be primarily domestic livestock, although human and wildlife sources might contribute a small portion of the total load encountered. Fecal coliform bacteria levels were analyzed at several river/stream flow conditions in an effort to determine the timing of major loadings. The most significant loadings were measured during high flow events, which were coincident with either major storms or spring snow melt. The bacteria encountered here are carried into the receiving waters by runoff, most likely from feed lots. However, elevated levels of fecal coliform bacteria were also encountered during periods of low flow, often many weeks after a runoff event. Under these conditions, feedlots would not be expected to contribute, and the source is likely to be animals grazing in close proximity to the river and creeks.

Several water bodies, over a substantial geographic area, are impaired within the Central Big Sioux River watershed. The impairments impact the use of the river and streams for boating, fishing, swimming and other recreational uses. Further, while the impairments have not yet affected use of the river as a domestic water supply, the current water quality problems may eventually result in an impairment. As the City of Sioux Falls currently extracts about 65% of its drinking water from the Big Sioux River, correcting these problems will have an impact well beyond the current recreational and aesthetic problems. BMPs to address the fecal coliform bacteria impairments are listed in Table7.

Table 6: Best Management Practices and Reduction Rating for North Central Big Sioux River

BMP	Potential Reduction of Fecal Coliform Bacteria from Practice
Feedlot Runoff Containment	High
Manure Management	High
Grazing Management	Moderate
Alternative Livestock Watering	Moderate
Buffer/Filter Strips	Moderate
Wetland Restoration or Creation	High
Riparian Vegetation Restoration	High
Conservation Easements	High

Livestock Exclusion	High

Note: approximate range of reductions: Low = 0-25% Moderate = 25-75% High = 75-100%

3.0 Project Description:

3.1 Project Goal:

The goal of the Lake Poinsett watershed implementation project is to restore Lake Poinsett to ensure the long term full realization of all designated uses of the lake. This project is the second segment of the local effort to complete BMP installation to reduce phosphorus loading by 35 percent and sediment loading by 40% to Lake Poinsett, originating from watershed feeding areas, grasslands, shorelines and cropland. The goal of the expansion into the North Central Big Sioux River and tributaries is to implement practices dealing with livestock management, which will reach a target of $\leq$ 2000 cfu/ 100 ml of fecal coliform bacteria during the months of May to September.

3.2 Project Objectives, Tasks, and Products:

Objective 1: Implement best management practices to: reduce phosphorus and sediment loading to the Lake Poinsett watershed, reduce fecal coliform bacteria concentrations in North Central Big Sioux River and tributary watersheds.

Task 1: Plan and install grazing management systems to restore and/or improve 10,000 acres of riparian grasslands to address 30,000 feet of stream segments

Proper grassland management provides adequate ground cover to; prevent erosion, increase infiltration, filter nutrients and fecal bacteria, by means of; controlled grazing, rest, rotation and deferment.

Managed grazing systems will be planned and implemented on 10,000 acres of the combined watersheds to reduce runoff, protect stream banks, and improve riparian and grassland vegetation. Thirty-thousand feet of riparian grasslands will be restored or improved through the installation of managed grazing practices and/or livestock exclusion at 20 sites.

Technical and financial assistance will be provided to landowners to plan and implement rotational grazing management on grasslands. Planning assistance will be provided by the project coordinator, staff from the 319 funded Grassland Management and Planning Project, and specialists from partnering agencies such as the Natural Resources Conservation Service (NRCS), County Conservation Districts and Cooperative Extension Services. Implementation of grazing systems will be in cooperation with and usually require the installation of livestock control structures or water devices by the landowner. BMPs installed will be funded by the landowner with financial assistance from this project, USDA (EQIP) and USFWS cost-share programs (Partners for Fish and Wildlife), and South Dakota state wildlife (GF&P).

Priority for assistance will be directed to sub-watersheds and areas identified in the assessments as critical contributors of phosphorus and fecal coliform bacteria.

Products 1 and 2 reflect different locations and corresponding needs across the entire Project Area, but are combined in Budget Table for simplicity.

Product 1: 1500 acres of rotational grazing systems installed with 5000 ft of riparian managed systems on 4 sites. Cross fences, exclusion fences, alternative water systems and stream crossings will facilitate livestock control and management within the Lake Poinsett watershed area.

Table 8: Product 1- Grazing Management Costs for Lake Poinsett Watersheds

BMP		Ave Cost/unit	Units	Total Cost	EPA 319 Cost
Fencing		$.85/ft	10560 ft	$9000	$2250
Alternative Water-Rural Water/Solar/Wind powered		$2000/unit	2 units	$4000	$2000
Pipelines	Above ground	$.50/ft	10000 ft	$5000	$2500
	Buried	$3.00/ft	3000 ft	$9000	$0
Tanks	Permanent	$600/unit	2 units	$1200	$300
	Portable	$300/unit	2 units	$600	$300
Stream Crossings		$3000/ unit	1 unit	$3000	$1500

(*The cost of planning managed grazing systems will be personnel costs from this project and project partners.)*

Product 1 Costs: Total Cost: $31,800 319 Cost: $8,850

Product 2: 8500 acres of rotational grazing systems installed along 25,000 ft of riparian managed systems on 16 sites. Cross fences, exclusion fences, alternative water systems and stream crossings will facilitate livestock control and management within the North Central Big Sioux River watersheds.

Table 9. Product 2-Grazing Management Costs for North Central Big Sioux Watersheds

BMP		Ave Cost/unit	Units	Total Cost	EPA 319 Cost

Fencing		$.85/ft	45000 ft	$38250	$9562
Alternative Water-Rural Water/Solar/Wind powered		$2000/unit	6 units	$12000	$6000
Pipelines	Above ground	$.50/ft	30000 ft	$15000	$7500
	Buried	$3.00/ft	3000 ft	$9000	$0
Tanks	Permanent	$600/unit	8 units	$4800	$1200
	Portable	$300/unit	8 units	$2400	$1200
Stream Crossings		$3000/ unit	8 unit	$24000	$8000

(*The cost of planning managed grazing systems will be personnel costs from this project and project partners.)*

Product 2 Cost: Total Cost: $105,450 319 Cost: $33,462

Task 1 Cost: Total Cost: $137,250 319 Cost: $42,312

Responsible Agencies:

Technical Assistance Coordination:

Project Coordinator

Hamlin Conservation District

Information Transfer:

Project Coordinator

Hamlin, Codington, Deuel and Kingsbury Conservation Districts

SD Association of Conservation Districts

Natural Resources Conservation Service

Implementation:

Project Coordinator

Grassland Planning and Implementation Project

Farmers and Ranchers

Hamlin Conservation Districts

USDA – Natural Resources Conservation Service (NRCS)

Financial Assistance:

USDA – Farm Service Agency (FSA) Continuous CRP

USDA – NRCS EQIP program

USFWS – Partners For Fish and Wildlife

SD Game, Fish and Parks and SD Conservation Commission

EPA- 319 Grants program

Monitoring Assistance:

Project Coordinator

SD Department of Environment and Natural Resources

East Dakota Water Development District

Task 2: Plan and install 11 animal nutrient management systems (ANMS) to reduce nutrient and bacteria loads originating from livestock feeding operations and feeding areas.

Assistance will be provided to livestock producers to plan and install 11 animal nutrient management systems (ANMS) in priority feeding areas identified during the watershed assessments for Lake Poinsett, and the feedlot data available from the assessments of Lake Albert, Lake Norden, and Lake St. John and the North Central Big Sioux River watersheds.

Technical assistance for design of the BMPs will be provided by project staff, NRCS Animal Nutrient Management Team, and qualified engineers for private confinement building contractors. Installation of ANMS will be funded by landowners with financial assistance from this project and the Environmental Quality Incentives Program (EQIP). The types of ANMS planned for installation will include a variety of methods that fit individual landowner operations and meet the projects water quality goal for the feedlot. Clean water diversions, evaporative ponds, sediment basins, vegetative treatment areas, confinement roof structures for livestock and/or manure storage will be options to consider. All systems installed will include a nutrient management plan to require, that manure is stored, handled and applied to fields, in a manner that prevents water pollution.

Products 3 and 4 reflect different location and needs within the Project area, but are combined on Budget Table for simplicity.

Product 3: Two ANMS with nutrient management plans installed within the Lake Poinsett watershed.

Table 9: Product 3-Animal Nutrient Management Systems in Lake Poinsett watershed costs.

BMP	Cost/unit	Units	Total cost	EPA cost
Covered Structures	$88,000/unit	1 unit	$88,000	$22,000
Vegetative Treatment Areas	$20,000/unit	1 unit	$20,000	$10,000
Nutrient Plans	$2500/ plan	2 Plans	$5000	$0

Product 3 Cost: Total Cost: $113,000 EPA Cost: $32,000

Product 4: Nine ANMS with nutrient management plans installed in North Central Big Sioux River watershed.

Table 10: Product 4-Animal Nutrient Management Systems within the North Central Big Sioux River watersheds costs.

BMP	Cost/Unit	Units	Total Cost	EPA Cost
Evaporative Ponds	$80,000	3	$240,000	$60,000
Covered Systems	$88,000	4	$352,000	$88,000
Vegetative Treatment Areas	$20,000	2	$40,000	$20,000
Nutrient Plans	$2500	9	$22,500	$0

Product 4: Total Cost: $654,500 319 Cost: $168,000

Task 2 Costs: Total Cost: $767,500 319 Cost: $200,000

Responsible Agencies:

Technical Assistance Coordination:

Project Coordinator

Hamlin Conservation District

Information Transfer:

Project Coordinator

Hamlin, Codington, Deuel, Kingsbury Conservation Districts

SD Association of Conservation Districts

Natural Resources Conservation Service

Implementation:

Project Coordinator

Hamlin Conservation District

USDA – Natural Resources Conservation Service (NRCS)

Financial Assistance:

319 Project Grants

USDA – NRCS: EQIP

Monitoring Assistance:

Project Coordinator

SD Department of Environment and Natural Resource

USDA – NRCS

Task 3: Perennial vegetation will be established or improved on 2333 acres of cropland and pasture located in or near flowing drainage areas. Perennial vegetation serves as filtering areas for sediment, nutrients and fecal bacteria and prevents erosion of soil within fields or waterways.

Product 5: Grassed Waterways will be established in eroding cropland drainage ways through shaping and/or seeding and filter strips will be seeded along cropland edges to creeks, streams, wetlands and waterways. Implement BMPs on 33 acres of cropland through the establishment of perennial cover with approximately 23 acres or (15,000 LF) of grassed waterways, 10 acres of filter strips on cropland to reduce sediment and nutrient loads from identified critical cells. Funding for BMPs will be by the landowner with assistance from this project and the USDA Farm Service Agency CCRP.

Table 11: Product 5- Cropland waterways and filter strips costs

BMP	Cost/unit	Units	Total Cost	EPA Cost
Grassed Waterway	$2/ ft	15,000 ft	$30,000	$5,000
Filter Strip Buffer	$100/acre	10 acres	$1000	$0

Product 5: Total Cost: $31,000 319 Cost: $5,000

Product 6: Continuous Conservation Reserve Program Contracts entered on 300 acres on 20 sites for stream buffers in marginal pastureland to reduce fecal coliform bacteria levels. Minimum width of 35ft, with average width of 120 ft desirable. $200/ acre incentive payment from EPA 319 for signup on TMDL listed stream segments, or tributaries above TMDL segments without in channel vegetation and with livestock presently using area.

Table 12: Product 6- Streamside buffers costs

BMP	Cost/unit	Units	Total Cost	EPA Cost
CCRP (CP-22, CP-29, CP-30) 15 yr contracts	$1275/ac	300 acres	$382,500	$60,000

Extra fencing costs or alternative water sources if needed are included under Task 1: Grazing Management.

Product 6 Cost: Total Cost: $382,500 EPA 319 Cost: $60,000

Product 7 : Establish 2000 acres perennial vegetation on cropland to reduce erosion and nutrient loss from lack of ground cover.

Table 13: Product 7-Perennial Vegetation establishment costs.

BMP	Cost/unit	Units	Total Cost	EPA Cost
Legume hay	$60/ ac	500 acres	$30,000	$7,500
Legume/grass hay	$70/ac	1000 acres	$70,000	$20,000
Pasture grass	$75/ac	500 acres	$37,500	$10,000

Product 7 costs: Total costs: $137,500 EPA costs: $37,500

Task 3 costs: Total costs: $551,000 EPA costs: $102,500

Responsible Agencies:

Technical Assistance Coordination:

Project Coordinator

Hamlin Conservation District

Information Transfer:

Project Coordinator

Hamlin, Codington, Deuel, Kingsbury Conservation District

SD Association of Conservation Districts

Natural Resources Conservation Service

Implementation:

Project Coordinator

Hamlin Conservation District

USDA – Natural Resources Conservation Service (NRCS)

Financial Assistance:

319 Project

USDA – Farm Service Agency (FSA) Continuous CRP

USDA – NRCS: EQIP, CCRP, FWP programs.

USFWS – Partners for Fish and Wildlife

SD Game, Fish and Parks

Monitoring Assistance:

Project Coordinator

Task 4: Restore or enhance 20 acres of wetlands that have lost function to serve as water catch basins for filtering sediments, nutrients and fecal bacteria as well as providing critical habitat for wildlife.

Product 8: Four wetlands totaling 20 acres will be restored to reduce stream flow and stream bank erosion, store or trap sediment, and to provide wildlife habitat. Restoration of wetlands will include plugging existing drains, removing tile lines, seeding accessible areas, and weed control for vegetative establishment.

Table 14: Product 8-Wetland Restoration costs

BMP	Cost/unit	Units	Total Cost	EPA Cost
Reestablish wetlands	$2000/ site (5ac/site)	4 sites	$8000	$2000

Product 8 costs: Total Cost: $8000 EPA 319 cost: $2000

Task 4 costs: Total Cost: $8000 EPA 319 cost: $2000

Responsible Agencies:

Technical Assistance Coordination:

Project Coordinator

Hamlin Conservation District

Information Transfer:

Project Coordinator

Hamlin, Codington, Deuel, Kingsbury Conservation District

Natural Resources Conservation Service

Implementation:

Project Coordinator

Hamlin Conservation District

USDA – Natural Resources Conservation Service (NRCS)

Financial Assistance:

USDA – Farm Service Agency (FSA) Continuous CRP

USDA – NRCS: EQIP, CCRP, FWP programs.

USFWS – Partners for Fish and Wildlife

SD Game, Fish and Parks

EPA 319 Grant

Monitoring Assistance:

Project Coordinator

SD Department of Environment and Natural Resources

Task 5: Promote Crop Residue management on 2500 acres through BMPs that sustain ground cover on croplands.

Product 9: On cropland with portions exceeding 5% slope and adjacent to tributaries, no-till planting in the Spring into previous years undisturbed crop residue followed by no tillage or only minimal vertical tillage in Fall will qualify for incentive payment. Strip tillage of Fall applied fertilizer does not qualify as minimal tillage on sloping soils. Practice will result in 29 continuous months of either growing vegetation or crop residue protecting soil surface, reducing runoff, increasing infiltration and conserving water.

Table 15: Crop Residue management costs

BMP	Cost/unit	Units	Total Cost	EPA Cost
No-tillage management	$10/acre	2500 acres	$25,000	$12,500

Product 9 cost: Total $25,000 EPA 319 $12,500

Task 5 cost: Total $25,000 EPA 319 $12,500

Responsible Agencies:

Technical Assistance Coordination:

Project Coordinator

Hamlin, Codington, Deuel, Kingsbury Conservation District

Information Transfer:

Project Coordinator

Hamlin Conservation District

SD Association of Conservation Districts

Natural Resources Conservation Service

Implementation:

Project Coordinator

Financial Assistance:

319 Project

Monitoring Assistance:

Project Coordinator

SD Department of Environment and Natural Resources

Task 6: Lakeshore stabilization to prevent eroding shoreline from contributing sediment and attached nutrients to Lakes.

Product 10: Stabilize unprotected shoreline and restore flood damaged riprap and seawalls primarily on Lake Poinsett.

Table 16: Shoreline Stabilization costs

BMP	Cost/unit	Units	Total Cost	EPA Cost
New stabilization areas	$65/ ft	500 ft	$32,500	$0
Restore flood damaged riprap and seawalls	$25/ ft	2000 ft	$50,000	$0

Product 10 cost: Total $82,500 EPA 319 $0 LPWPD $25,000

Task 6 cost: Total $82,500 EPA 319 $0 LPWPD $25,000

Responsible Agencies:

Technical Assistance Coordination:

Project Coordinator

Information Transfer:

Project Coordinator

Lake Poinsett Water Project District

Lake Poinsett Development Association

Implementation:

Project Coordinator

Financial Assistance:

Lake Poinsett Water Project District

Monitoring Assistance:

Project Coordinator

Objective 2: Provide information to a minimum of 150 watershed landowners and 100 area citizens about project activities, progress, and goals for water quality to gather local support and input and to increase the implementation of BMPs by landowners.

Task 7: Plan and complete 10 informational activities to increase BMP implementation by landowners and project participation by partners and the general public. The project coordinator will lead informational activities. Successful educational activities from the previous implementation project will be continued (regional grazing conference, tours, watershed newsletters, etc.). Activities will be completed in cooperation with partners for technical assistance and funding from this project, partners, and local sources.

Product 11: Effective Information transfer and education program.

Two regional grazing conferences, two producer tours, two tours for the general public, and four newsletters are planned. Testing of water, manure, soils, and plants will be utilized at tour sites to provide the audience quantitative information on the benefits of BMPs installed.

Table 17: Product 11- Information transfer costs

Information Activity	Cost/unit	Units	Total Cost	EPA Cost
Grazing workshops regional	$4500/ conference	2	$9000	$3000
Producer Tours	$600	2	$1200	$300
General public Tours	$300	2	$600	$300
Newsletters	$1.50/copy mailed	400	$600	$200
Testing samples for workshops	$50	8	$400	$400

Target Audience: Farmers/Ranchers, resource managers, project partners, and area citizens.

Activity Team Leader: Project Coordinator and Hamlin Conservation District.

Task 7: Product 11: Total Cost: $11,800 319 Cost: $4,200

Responsible Agencies:

Information Transfer:

Project Coordinator

SD Association of Conservation Districts

Natural Resources Conservation Service

Implementation:

Project Coordinator

Hamlin Conservation District

USDA – Natural Resources Conservation Service (NRCS)

Financial Assistance:

319 Water Quality Project

Hamlin Conservation District

Objective 3: Monitor and document project milestone accomplishments, finances, and progress to provide information needed to manage and administer the project in a manner that will result in reaching project objectives and attaining the project goal.

Task 8: Complete project reports and monitor project progress and meet SD Department of Environment and Natural Resources (DENR) 319 program requirements.

Product 12: Two Mid-year, two annual (GRTS) and one Final Report

The following reports will be completed and submitted to DENR:

- two mid-year reports (April 2012, and 2013),
- two annual reports (October 2011 and 2012)
- one final report (July 2013).

Mid-year and annual reports (GRTS) will be submitted to DENR using a format provided by the department. In addition to the narrative summary of project progress the reports will include:

a. Load reductions for BMPs installed will be estimated utilizing annualized AGNPS and STEPL. .
b. Location and land use where BMPs have been installed and/or in use utilizing a GIS layered land use and location mapping system.

The final report will include a narrative summary of progress on project objectives to improve water quality. This report will utilize annualized AGNPS and GIS and/or other methods that might be provided by DENR to calculate estimated project load reduction accomplishments and current land use status in the watershed. The final report will be completed using a format provided by DENR.

Task 8, Product 12 Costs: *The cost of completing this task is included in project personnel costs.*

Responsible Agencies:

Implementation:

Project Coordinator

Hamlin Conservation District

Technical Assistance:

Project Coordinator

SD Department of Environment and Natural Resources.

3.3 Milestone Table

Milestone	Year 1	Year 2	Total
Riparian Grazing			
Fence	23,500 feet	32 060 feet	55,560 feet
Alternative Water	3 sites	7 sites	10 sites
Pipelines			
Aboveground	16,000 feet	24,000 feet	40,000 feet
Buried	2,666 feet	3,334	6,000 feet
Tanks			
Permanent	4 tanks	6 tanks	10 tanks
Portable	3 tanks	7 tanks	10 tanks
Stream Crossings	4 crossings	5 crossings	9 crossings
Animal Nutrient Systems			
Evaporative Ponds	1 system	2 systems	3 systems
Covered Structures	2 systems	3 systems	5 systems
Vegetative Treatment	1 system	2 systems	3 systems
Nutrient manag. plans	4 plans	7 plans	11 systems
Cropland waterways and			
Grass waterway	5000 ft	10,000 ft	15,000 ft
Filter strip buffers	5 acres	5 acres	10 acres
Grazing land stream side	100 acres	200 acres	300 acres
Perennial vegetation	725 acres	1275 acres	2000 acres
Wetland Restoration	1 site	3 sites	4 sites
Crop residue	750 acres	1750 acres	2500 acres
Shoreline Stabilization	1250 ft	1250 ft	2500 ft
Information Transfer			
Grazing workshops	1 regional meeting	1 regional meeting	2 regional meeting
	2 local meetings	2 local meetings	4 local meetings
Producer tours	1 tour	1 tour	2 tours
Public tours		2 tours	2 tours
Newsletters/joint	3 mailings	3 mailings	6 mailings

3.4 Required Permits

All required permits will be obtained for the installation of BMPs during this proposed project. It is anticipated that:

- 401 and 404 permits will be required for shoreline and riparian BMP installation.
- Storm water construction permits will be required for animal waste management systems.
- State Historical Preservation Office clearance will be needed for any BMPs involving ground disturbing activities.
- Compliance completed for BMPs to meet requirements of the Threatened and Endangered Species Act.

3.5 Project Sponsor

The Hamlin Conservation District is the project sponsor. This project continues the Lake Poinsett watershed implementation project as expanded to include lakes Norden, St. John, and Albert, (1998 - 2010) sponsored by the Hamlin Conservation District. The district has experience in project implementation leadership, administration, and management. The Hamlin Conservation District also has a long-term working relationship with the landowners, organizations, and communities in the watershed area.

3.6 Operation and Maintenance Responsibilities

Operation and maintenance responsibilities for BMPs funded by 319 will be detailed in contracts entered in between the Hamlin Conservation District and landowners installing BMPs. The contracts for BMP installation will specify BMP operation and maintenance needs, procedures for BMP failure or abandonment, and the timeframe the BMP will be maintained.

The Hamlin Conservation District will be responsible for completing operation and maintenance contracts, on-site evaluation of BMPs installed to ensure operation and maintenance activities are being completed, and follow-up as needed to ensure BMP operation for its designated life span.

4.0 COORDINATION PLAN

4.1. The Hamlin Conservation District is the lead project sponsor. The District will be responsible for completion and documentation of activities planned to attain the project goal, and complete and file required reports. The Hamlin Conservation District, using project funds, will continue to employ a project coordinator and support staff needed to complete project activities. Additional project support will be provided by the Hamlin Conservation District Board of Supervisors and the district manager. The District will partner with local, state, and federal organizations and agencies to implement this project utilizing their available technical and financial assistance as follows:

- USDA Natural Resources Conservation Service: Technical assistance from Hamlin County Conservation field office staff and state specialists for planning BMPs such as grazing systems, ag waste systems, riparian buffers, grassed waterways, filter strips, wetland restoration, and shoreline stabilization, and financial assistance for BMP installation from existing programs (EQIP, WRP, FWP,).

- US Fish and Wildlife Service: Through the Partners for Fish and Wildlife Program, the F&W Service will be requested to contribute cost-share assistance for ponds, cropland conversion seedings, and grazing systems, and provide technical assistance when available.

- SD Game, Fish and Parks: The SD GF&P will requested to provide financial assistance to install grassland and/or wetland BMPs such as grazing systems, exclusion fencing, cropland conversion seedings, and multiple purpose ponds.

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- South Dakota Association of Conservation Districts: The SDACD project staff will be requested to provide assistance through several of their existing 319 funded technical assistance projects:

  - Grassland Management Project – Continuation of the grazing system on-farm demonstration in the watershed, and technical assistance for grazing systems.
  - 303(d) Watershed Planning and Implement Project – Technical and financial assistance for animal nutrient management systems, to include producer contacts and referrals for system engineering to private firms.

- South Dakota Department of Environment and Natural Resources: Technical assistance for water quality issues, request approval of the Section 319 Grant from EPA, and project implementation, administration, and management.

- USDA - Farm Service Agency: Cost-share assistance and program support for CRP, continuous CRP, WHIP, etc.
- South Dakota Department of Agriculture – SD Conservation Soil and Water Conservation (Conservation Commission) Grant Program.

4.2 Local Support

The Lake Poinsett Watershed Implementation Project has economic and social values to landowners and the communities in the region due to the watershed's agricultural productivity, and high land and water based recreation values (See section 2.2).

As part of the watershed assessments for Lake Poinsett, Lake Norden, Lake St. John, and Lake Albert, Hamlin Conservation District staff visited with landowners and community organizations to inform them of the assessment project and discuss the potential BMPs that may need to be implemented.

The implementation of the project by Hamlin Conservation District will continue the use of an advisory work group to maximize technical and financial assistance resources available to landowners, and utilize input from local organizations and government. Advisory group members include: Hamlin, Codington, Deuel, Brookings, and Kingsbury Conservation Districts and NRCS Field Offices, Project Coordinator, Lake Poinsett Association, Hamlin County Extension and County Commission, and SD Game, Fish, and Parks.

4.3 Project Coordination

The Hamlin Conservation District will be responsible for project coordination to ensure the maximum use of available local, state, and federal technical and financial resources. This project will coordinate with the districts traditional partners, such as SD DENR, SDACD, and NRCS, to provide training and technical assistance to project staff on BMPs, and project administration and management.

4.4 Coordination with Pertinent Projects (See also Section 4.1)

This project will be implemented through coordination with other agencies and organizations to meet the project goal, objectives and tasks. The following areas where coordination of programs is critical include:

BMP implementation: The funding for implementation of BMPs on cropland and grassland are supported in this proposal by landowner, 319, USDA (CCRP/EQIP, FWP, WHIP), USFWS Partners for Wildlife, and by state wildlife (GF&P) and private wildlife habitat funds (Ducks Unlimited and Pheasants Forever). .

Technical Assistance: Technical assistance for BMP installation will be provided to landowners through a coordinated effort utilizing the appropriate expertise. The Project Coordinator will lead technical assistance delivery and coordination for the Hamlin Conservation District. Technical assistance resources utilized will include: NRCS field and state staff, Conservation District staff, existing 319 staff (Grassland and Watershed Planning and Implementation projects), SD GF&P, US F&W, and SD DENR.

5.0 EVALUATION AND MONITORING

5.2 Indicators of Success

The Hamlin Conservation District will monitor project progress based on project milestones, and include progress in their project reports. Progress to meet milestones will include a financial accounting of funds, and the source of funds for each milestone. Local support and partner in-kind and cash contributions will be documented for BMP installation, project management activities, and informational activities.

The effectiveness of BMPs installed relative to the improvement in water quality will be evaluated using the tools and models available such as:

1. AnnAGNPS and STEPL models for changes in loadings due to BMP installation.
2. Buffer and riparian vegetation establishment reductions for phosphorus and sediment modeled as grass seedings using Annualized AGNPS as well as estimates from research studies conducted in the region by universities.
3. Assessment of feedlots to compare before and after BMP installation loadings using the AnnAGNPS model.

All BMPs installed in the watershed with partner financial assistance (non-319 funds) will also be evaluated for improvements in water quality using the tools noted above.

5.3 Recordkeeping and data storage and management

The Hamlin Conservation District will be responsible for collecting, storing, and managing data collected during the implementation of this project. The South Dakota DENR will provide technical assistance and guidance to assist the Hamlin Conservation District set-up the appropriate record systems and computer software for project data collection. Water Quality data collected will be provided to SD DENR for entry into STORET.

5.4 AGNPS to determine progress/priority

The Hamlin Conservation District will utilize the South Dakota DENR for technical assistance and training on the use of models and tools to assess project success and progress. The AnnAGNPS model (to include the feedlot model) will be the main model used to assess the impact of BMP installation in the watershed.

5.5 Operation and Maintenance

The installation of the major BMPs for this project (animal nutrient management systems, fencing, water development, etc.) will involve a contract between the Hamlin Conservation District and the landowner for operation and maintenance of the BMP to be installed. The operation and maintenance section of the contract will specify the life span of the BMP, who is responsible for maintenance and operation, and normal operation and maintenance needs for each BMP. The Hamlin Conservation District will be responsible to ensure that the Operation and Maintenance contracts are implemented. The District and local partners, will lead efforts to implement needed operation and maintenance on BMPs after this project's grant period.

6.0 BUDGET

SEE ATTACHED:

Project Budget

7.0 PUBLIC INVOLVEMENT

The Hamlin Conservation District will provide leadership to ensure public involvement throughout completion of the project. The Project Coordinator will make personal contacts to watershed landowners, local organizations and communities, and state and federal agencies to inform them of project activities and opportunities to coordinate actions. A local advisory group, stakeholder group, that met to provide assistance to develop this proposal, will meet at least twice annually to review project progress and plan future activity.

The Hamlin Conservation District, through completion of Objective 2 (information and education) of this proposal will be providing information to the public through landowner/watershed meetings, a watershed newsletter, annual tours, and news releases.

8.0 THREATENED AND ENDANGERED SPECIES

There are no threatened or endangered species documented in the Lake Poinsett Watershed. The Topeka Shiner is an endangered species that could be encountered in the project area. The U.S. Fish and Wildlife Service also lists the whooping crane, bald eagle, and western prairie fringed orchid as species that could potentially be found in the area. The Topeka shiner was observed during 1999 through 2002 sampling by South Dakota State University in tributaries of the Big Sioux River. Two creeks, Strayhorse and Hiddenwood, located east of the Lake Poinsett Watershed on the east side of the Big Sioux River did have Topeka Shiner observations. The procedures that will be followed to ensure the project will not adversely affect threatened and endangered species are based on the following premises:

1. The best management practices to be implemented will promote the improvement of water quality, which will benefit threatened and endangered species that depend on water.
2. The occurrence of migratory endangered species is expected to be transitory, and if they are present, project activities will cease until they have left the area.

The precautions that will be taken with respect to threatened and endangered species that could potentially be found in the area are as follows:

1. Whooping Crane

Whooping cranes are known to migrate through South Dakota. If a whooping crane(s) is observed at any project work site, all mechanical activities at the site will be suspended until the bird(s) leaves the site under its own volition. Spring and fall migrations of the species through the state occur during mid to late April and mid to late October.

2. Bald Eagle

The bald eagle can be found near water, primarily on river systems, large lakes, reservoirs, and coastal areas. Bald eagles typically prefer large trees for perching and roosting. As there is no confirmed documentation of bald eagles within the Upper Snake Creek watershed, little or no impact to the species should occur. Best management practices should avoid the destruction of large trees that may be used as bald eagle perches, particularly if an eagle is observed using a tree as a perch or roost. No project activities are planned that will disturb possible nesting sites or reduce food sources. If any actions become necessary during the project that might impact bald eagles that are in or visit the area, the sponsor or its agent will contact DENR for approval to complete the action before proceeding. If a bald eagle(s) is observed at any project work site, all mechanical activities at the site will be suspended until the bird(s) leaves the site under its own volition.

3. Western Prairie Fringed Orchid

At this time there are no documented populations of the western prairie fringed orchid in South Dakota. *Platanthera praeclara* grows up to four feet tall and has two dozen or more white to creamy colored, one-inch long flowers on a stalk. This species is distinguished from eastern prairie fringed orchids by larger flowers, differing petal shape, and longer nectar spur. The flowers emerge in May, bloom from June to July, and are pollinated by sphinx moths. Fringed orchids are found in tall grass prairies, most often in moist habitats or sedge meadows, and require direct sunlight for growth. They persist in areas disturbed by light grazing, burning, or mowing. Western prairie fringed orchids are known to have occurred from northeastern Oklahoma, within the Ark/Red, as well as locations in Kansas, Missouri, Nebraska, Iowa, Minnesota, and South Dakota. The greatest threat to the species is conversion of tall grass prairie to other land uses. If an orchid is observed at any project work site, all mechanical activities at the site will be suspended. Work will be altered or the plant(s) protected so no harm will come to it.

4. Topeka Shiner

The project proposal gives priority to improving grazing management on grasslands. Planned riparian restoration activities are primarily livestock exclusion, fencing, and development of alternative water away from the stream. There may be some short-term increases in suspended solids concentrations during these activities; however, the long-term impact should be an improved habitat for Topeka Shiners. Prior to installation of BMPs planned, consultation will occur with and measures directed by the US Fish and Wildlife Service, and the South Dakota Topeka Shiner Management Plan will be followed. Should the fish be found, under no circumstances will in stream construction be carried out during the spawning period from May 15 to July 31.

Category:	Year 1	Year 2	Total	319	Federal	State	Local
Personnel:							
Project Coordinator (incl. Employer Costs)	52500	54000	106500	106500			
Administrative Staff (incl. Employer Costs)	2500	2500	5000	5000			
Office Operations:							
Paper, postage, printing, misc supplies	350	350	700	700			
Coordinator Cell Phone	500	500	1000	1000			
Computer Maintenance/ Lease/Software	700	700	1400	700	700		
Office rent	1800	1800	3600	3600			
Travel:							
Vehicle lease							
Vehicle Mileage	2500	2500	5000	5000			
Vehicle Insurance							
Lodging and Per Diem (3/yr @ $75)	225	225	450	450			
Objective 1: Reduce Pollutant Levels							
Task 1: Products 1 & 2 Grazing management							
Fence: 55,560 ft @ $.85/ ft	20000	27250	47250	11812		11812	23626
Alternative Water Sources: 10 @ $2000	6000	10000	16000	8000			8000
Pipelines:							
40,000 ft aboveground @ $.50/ft	8000	12000	20000	10000			10000
6,000 ft buried @ $3.00/ ft	8000	10000	18000	0	9000	4500	4500
Tanks:							
10 permanent installation @ $600/unit	2400	3600	6000	1500	1500	1500	1500
10 portable @ $300/ unit	900	2100	3000	1500			1500
Stream Crossings: 9 @ $3000/ unit	12000	15000	27000	9500	9500		8000
Products 3 & 4 -Animal Nutrient							
Management Systems							
Evaporative ponds 3 @ $80,000/ unit	80000	160000	240000	60000	120000		60000
Covered Structures 5 @ $88,000/ unit	176000	264000	440000	110000	110000		220000
Vegetative Treatment 3 @ $20,000/unit	20000	40000	60000	30000	0		30000
Nutrient management Plans 11 @$2500	10000	17500	27500	0	13750		13750
Product 5- Cropland Waterways/ Filters							
Grass waterway 15,000 ft @ $2/ft	10000	20000	30000	5000	15000		10000
Filter Strip buffer 10 acres @ $100/ac	500	500	1000	0	750		250
Product 6- Streamside buffers							
CCRP (CP-22, CP-29, CP-30) Contracts							
and Incentives 300 acres @ $1275/ac	127500	255000	382500	60000	322500		0
Product 7- Perennial Vegetation							
Legume hay planting 500 ac @ $60/ac	10000	20000	30000	7500			22500
Legume/grass hay 1000 ac @ $70/ ac	25000	45000	70000	20000			50000
Pasture grass planting 500 ac @ $75/ ac	12500	25000	37500	10000		20000	7500
Product 8- Wetland Restoration							
4 sites @ $2000/ site	2000	6000	8000	2000	6000		0
Product 9- Crop residue management							
2500 ac @ $10/ac	7500	17500	25000	12500			12500
Product 10- Shoreline Stabilization							
New stabilization 500 ft@ $65/ ft	16250	16250	32500	0			32500
Restore flood damaged 2000 ft @ $25/ft	25000	25000	50000	0			50000
Product 11-Information transfer							
Regional workshops 2 @ $4500 each	4500	4500	9000	3000			6000
Producer tours 2 @ $600 each	600	600	1200	300			900
Public tours 2 @ $300 each	0	600	600	300			300
Newsletters mailed 400 @ $1.50 each	300	300	600	200			400
Testing samples for workshops 8@ $50	200	200	400	400			0
	Year 1	Year 2	Total	319	Federal	State	Local
Totals	$ 646,225	$ 1,060,475	$ 1,706,700	$ 486,462	$ 608,700	$ 37,812	$ 573,726